

	Present calculation	$(1+\nu)E_1+2(1-2\nu)E$ at $r=a$	$(1+\nu)E_1+2(1-2\nu)E$ at $r=a$	$K \sqrt{3K_1+4G}$
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† Note: τ_{\max} in Hahn and Rosenfeld's equation goes to infinity as $K_1 \rightarrow 0$.

$-P$: External hydrostatic pressure,
 ν, ν_1 : Poisson's ratio of the matrix
 and inclusion, respectively,
 K, K_1 : Bulk modulus of the matrix
 and inclusion, respectively,

$(-P_1)$: Internal pressure,
 r : Radius vector,
 τ_{\max} : Maximum shear stress,
 $\sigma_{rr}, \sigma_{\theta\theta}, \sigma_{\phi\phi}$: Radial, circumferential and
 azimuthal stress, respectively,

a : The radius of the inclusion,
 G : Shear modulus of the matrix,
 E, E_1 : Young's modulus of the matrix
 and inclusion, respectively.

and copper matrix as a function of the applied hydrostatic pressure

Matrix	Hydrostatic pressure	τ_{\max} (p.s.i.)									
		Cavity				Rigid inclusion	Elastic inclusion†				
		With zero internal pressure		With internal pressure (helium bubble)†			Thorium dioxide		Hafnium carbide		
Tungsten	10 kb	111×10^3	$\frac{G}{200}$	—	—	79×10^3	$\frac{G}{275}$	24.7×10^3	$\frac{G}{900}$	17.0×10^3	$\frac{G}{1300}$
	20 kb	222×10^3	$\frac{G}{100}$	—	—	159×10^3	$\frac{G}{137.5}$	49.4×10^3	$\frac{G}{450}$	34.0×10^3	$\frac{G}{650}$
	25 kb	278×10^3	$\frac{G}{80}$	—	—	200×10^3	$\frac{G}{110}$	61.8×10^3	$\frac{G}{360}$	42.5×10^3	$\frac{G}{520}$
	40 kb	444×10^3	$\frac{G}{50}$	—	—	318×10^3	$\frac{G}{68.8}$	98.8×10^3	$\frac{G}{225}$	68.0×10^3	$\frac{G}{325}$
Copper	10 kb	111×10^3	$\frac{G}{60}$	98×10^3	$\frac{G}{68}$	61×10^3	$\frac{G}{108}$	—	—	—	—
	20 kb	222×10^3	$\frac{G}{30}$	196×10^3	$\frac{G}{34}$	122×10^3	$\frac{G}{54}$	—	—	—	—
	25 kb	278×10^3	$\frac{G}{24}$	245×10^3	$\frac{G}{27}$	153×10^3	$\frac{G}{43.5}$	—	—	—	—

Data† used in the stress calculations for tungsten and copper.

	Tungsten	Thorium dioxide	Hafnium carbide	Copper
Shear modulus G (p.s.i.)	22×10^6	—	—	6.6×10^6
Young's modulus E (p.s.i.)	56.5×10^6	—	—	16.1×10^6
Poisson's ratio ν	0.27	—	—	0.33
Bulk modulus K (p.s.i.)	40.9×10^6	25.9×10^6	30.7×10^6	15.8×10^6

† Calculated on the basis of an internal pressure of 1.2 kb for the size of the bubble of 500 Å in radius.

‡ All data taken from Cottrell (1964 b) except for ThO_2 and HfC (Shaffer 1964).